Shoulder soreness due to shoulder braces following robotic surgery in steep Trendelenburg position

Sir,

Robotic surgery overcomes several limitations of conventional laparoscopic techniques.[1] This technique warrants special attention with respect to position and associated hemodynamic changes, accessibility of patient, and ventilation strategies. According to the type of operation, robotic surgery often requires surgical positioning that is relatively extreme and steeper than in other conventional or laparoscopic surgery. These extreme positions increase the risk of patients sliding off the table, making the use of restraints inevitable.[1]

Da Vinci Xi, the latest version of intuitive surgical has been introduced for the 1st time in the country for oncosurgeries at our center. We used shoulder braces to prevent cephalad migration of the patient during a head low. We observed redness and pain over one or both shoulders in 6 out of 10 initial cases at the end of the surgery. This is a case report on our observation of shoulder soreness due to shoulder braces in the patients undergoing robotic procedures with steep head low.

Our initial cases included surgeries for gastrointestinal and genitourinary tumors mostly requiring a steep Trendelenburg position with or without lithotomy. In all cases, the arms of the patients were kept by the side. All pressure points were adequately padded and the shoulder braces were applied to prevent the patient from sliding. We observed pain and redness over one or both acromioclavicular joints in 6 out of 10 patients in the early postoperative period [Figure 1]. The total duration of the surgery in these cases ranged between 6 and 10 hours, whereas the degree of head low ranged between 30° and 40°. A brief summary of these six cases is shown in Table 1.

None of these patients experienced any sensory or motor weakness postoperatively. Their pain was adequately controlled with nonopioid analgesics such as nonsteroidal anti-inflammatory drugs and/or paracetamol in the early postoperative period. The redness and pain decreased over initial few hours and disappeared completely by the end of 24 h postoperatively.

Compartment syndrome and nerve injuries[1,2] are known to occur during prolonged steep head low positions. The shoulder braces are frequently used in the steep head low position to prevent the patient from sliding off the table. Brachial plexus injuries have been observed in the cases where shoulder braces were used in combination with arm abduction to 90°.[3,4] A technique of strapping the patient to the operating table with chest banding is advocated by some authors to avoid shoulder braces. However, this method can aggravate the decrease in lung compliance.[5]

To overcome this problem, we attempted to modify the

Table 1: Perioperative details of patients

Age (years)/ sex	Weight (kg)	ASA	Proposed surgery	Duration of anesthesia (h)	Degree of Trendelenburg
58/male	67	2	Prostatectomy	8	40
38/male	54	1	APR	6	30
42/female	55	1	APR	6.5	30
66/male	58	2	LAR	10	30
48/female	63	1	ISR	9	30
50/female	50	1	ISR	8	35

ASA: American Society of Anaesthesiologist; APRL: Abdomino-perineal resection; AR: Anterior resection; ISR: Intersphincteric resection; LAR: Low anterior resection

technique of attaching the shoulder braces. We used extra padding between the braces and shoulder, and the braces were kept horizontally (instead of keeping them vertically) to increase the surface area in contact [Figure 2]. This helped in decreasing the shoulder soreness to a great extent. In the last two cases where this technique was used; shoulder soreness was minimal.

Hence in our experience, meticulous positioning and technical modification in the application of the shoulder brace could minimize Department of Anesthesia, Kokilaben Ambani Hospital the shoulder soreness.

Figure 1: Shoulder soreness and redness near acromion process seen at the end of robotic surgery

Figure 2: Changes done in shoulder padding

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